

Fig. 1

	1	60
Hpv11-e1	MADDSGTENEGSGCTGWMVEAIVHEHTTGTQISEDEEEVEDSGYDMVDFIDRRHITQNS	
Hpv6a-e1	MADDSGTENEGSGCTGWMVEAIVQHPTGTQISDDEEVEDSGYDMVDFIDDSNITHNS	
6b-e1	MADDSGTENEGSGCTGWMVEAIVQHPTGTQISDDEEVEDSGYDMVDFIDDSNITHNS	
	61	120
Hpv11-e1	VEAQALFNRQEADAHYATVQDLKRKYLGSPPVSPISNVANAVESEISPRDLAIKLTTPQPK	
Hpv6a-e1	LEAQALFNRQEADTHYATVQDLKRKYLGSPPVSPINTIAEAVESEISPRDLAIKLTQPK	
6b-e1	LEAQALFNRQEADTHYATVQDLKRKYLGSPPVSPINTIAEAVESEISPRDLAIKLTQPK	
	121	180
Hpv11-e1	KVKRRLFETRELTDSGYGYSEVEA..ATQVEKHGDPENGGDCQERDTRDIEGEGVEHRE	
Hpv6a-e1	KVKRRLFQETRELTDSGYGYSEVEAGTGTQVEKHGVPENGGDCQEKDTRDIEG..EEHTE	
6b-e1	KVKRRLFQETRELTDSGYGYSEVEAGTGTQVEKHGVPENGGDCQEKDTRDIEG..EEHTE	
	181	240
Hpv11-e1	AEAVDDSTREHADTSGILELLKCKDIRSTLHGKFKDCFGLSFVDLIRPFKSDRTTCADWV	
Hpv6a-e1	AEAPTNSVREHAGTAGILELLKCKDLRAALLGKFKECFGLSFIDLIRPFKSDKTTCADWV	
6b-e1	AEAPTNSVREHAGTAGILELLKCKDLRAALLGKFKECFGLSFIDLIRPFKSDKTTCADWV	
	241	300
Hpv11-e1	VAGFGIHHSIADAFQKLEPLSLYAHIQWLTNAWGMVLLVLIRFKVKNKSRCTVARTLGT	
Hpv6a-e1	VAGFGIHHSISEAFQKLEPLSLYAHIQWLTNAWGMVLLVLIRFKVKNKSRSTVARTLATL	
6b-e1	VAGFGIHHSISEAFQKLEPLSLYAHIQWLTNAWGMVLLVLIRFKVKNKSRSTVARTLATL	
	301	360
Hpv11-e1	LNIPENHMLIEPPKIQSGVRALYWFRGTGINSASTVIGEAPEWITRQTVIEHSLADSQFKL	
Hpv6a-e1	LNIPDNQMLIEPPKIQSGVAALYWFRGTGINSASTVIGEAPEWITRQTVIEHGLADSQFKL	
6b-e1	LNIPENQMLIEPPKIQSGVAALYWFRGTGINSASTVIGEAPEWITRQTVIEHGLADSQFKL	
	361	420
Hpv11-e1	TEMVQWAYDNDICEESEIAFEYAQRGDFDSNARAFLNNSMQAKYVKDCAIMCRHYKHAEM	
Hpv6a-e1	TEMVQWAYDNDICEESEIAFEYAQRGDFDSNARAFLNNSMQAKYVKDCAIMCRHYKHAEM	
6b-e1	TEMVQWAYDNDICEESEIAFEYAQRGDFDSNARAFLNNSMQAKYVKDCAIMCRHYKHAEM	
	421	480
Hpv11-e1	KKMSIKQWIKYRGTKVDSVGNWKPVIQFLRHQNIIEFIPFLSKLKLWLHGTPKKNCIAIVG	
Hpv6a-e1	RKMSIKQWIKHRGSKIETGNWKPVIQFLRHQNIIEFIPFLSKFLKLWLHGTPKKNCIAIVG	
6b-e1	RKMSIKQWIKHRGSKIETGNWKPVIQFLRHQNIIEFIPFLTKFLKLWLHGTPKKNCIAIVG	
	481	540
Hpv11-e1	PPDTGKSCFCMSLIKELGGTVISYVNSCSHFWLQPLTDAKVALLDATOPCWITYMDTYMR	
Hpv6a-e1	PPDTGKSYFCMSLISFLGGTVISHVNSSSHFWLQPLVDAKVALLDATOPCWIYMDTYMR	
6b-e1	PPDTGKSYFCMSLISFLGGTVISHVNSSSHFWLQPLVDAKVALLDATOPCWIYMDTYMR	
	541	600
Hpv11-e1	NLLDGNPMSIDRKHRALTLIKCPPLLVTSNIDISKEEKYKYLHSRVTTFTFPNPFPPDRN	
Hpv6a-e1	NLLDGNPMSIDRKHKALTLIKCPPLLVTSNIDITKEEKYKYLHTRVTTFTFPNPFPPDRN	
6b-e1	NLLDGNPMSIDRKHKALTLIKCPPLLVTSNIDITKEDKYKYLHTRVTTFTFPNPFPPDRN	
	601	651
Hpv11-e1	GNAVYELSDANWKCFFERLSSSLDIEDSEDEEDGSNSQAFRCVPGSVVVRTL [SEQ. ID NO.1]	
Hpv6a-e1	GNAVYELSNANWKCFFERLSSSLDQDSEDEEDGSNSQAFRCVPGTVVVRTL [SEQ. ID NO.2]	
6b-e1	GNAVYELSNTNWKCFFERLSSSLDQDSEDEEDGSNSQAFRCVPGTVVVRTL [SEQ. ID NO.3]	

Fig. 2

	1	60
6b-e1	MADDSGTENEGSGCTGWFMEAI VQHPTGTQISDDEDEEVEDSGYDMVDFIDDSNITHNS	
6b-e1 mut	MADDSGTENEGSGCTGWFMEAI VQHPTGTQISDDEDEEVEDSGYDMVDFIDDSNITHNS	
	61	120
6b-e1	LEAQALFNRQEADTHYATVQDLK RKYLGSPPYVSPINTIAEAVESEISPRLDAIKLTRQPK	
6b-e1 mut	LEAQALFNRQEADTHYATVQDLG GKYLGSPPYVSPINTIAEAVESEISPRLDAIKLTRQPK	
	121	180
6b-e1	KVKRRRLFQTRELTDSGYGYSEVEAGTGTQVEKHGVPENGGDGQEKDTRDIEGEEHTEAE	
6b-e1 mut	KVKRRRLFQTRELTDSGYGYSEVEAGTGTQVEKHGVPENGGDGQEKDTRDIEGEEHTEAE	
	181	240
6b-e1	APTNSVREHAGTAGILELLKCKDLRAALLGKFKECFGLSFIDLIRPFKSKDTTCLDWVVA	
6b-e1 mut	APTNSVREHAGTAGILELLKCKDLRAALLGKFKECFGLSFIDLIRPFKSKDTTCLDWVVA	
	241	300
6b-e1	GFGIHHSISEAFQKLEPLSLYAHIQWLTNAWGMVLLVLLRPFVKNKSRSSTVARTLATLLN	
6b-e1 mut	GFGIHHSISEAFQKLEPLSLYAHIQWLTNAWGMVLLVLLRPFVKNKSRSSTVARTLATLLN	
	301	360
6b-e1	IPENQMLIEPPKIQSGVAALYWFRGTGISNASTVIGEAEWITRQTVEIHLGLADSQFKLTE	
6b-e1 mut	IPENQMLIEPPKIQSGVAALYWFRGTGISNASTVIGEAEWITRQTVEIHLGLADSQFKLTE	
	361	420
6b-e1	MVQWAYDNDICEESEIAFEYAQRGDFDSNARAFLNQAKYVKDCATMCRHYKHAEMRK	
6b-e1 mut	MVQWAYDNDICEESEIAFEYAQRGDFDSNARAFLNQAKYVKDCATMCRHYKHAEMRK	
	421	480
6b-e1	MSIKQWIKHRGSKIETGNWKPIVQFLRHQNIETPFLTKFKLWLHGTTPKKNCIAIVGPP	
6b-e1 mut	MSIKQWIKHRGSKIETGNWKPIVQFLRHQNIETPFLTKFKLWLHGTTPKKNCIAIVGPP	
	481	540
6b-e1	DTGKSYFCMSLISLFLGGTVISHVNSSSHFWLQPLVDKAVALLDDATQPCWIYMDTYMRNL	
6b-e1 mut	DTGKSYFCMSLISLFLGGTVISHVNSSSHFWLQPLVDKAVALLDDATQPCWIYMDTYMRNL	
	541	600
6b-e1	LDGNPMSIDRKHKALTLIKCPPLLVTSNIDITKEDKYKYLHTRVTTFTFNPFPPDRNGN	
6b-e1 mut	LDGNPMSIDRKHKALTLIKCPPLLVTSNIDITKEDKYKYLHTRVTTFTFNPFPPDRNGN	
	601	649
6b-e1	AVYELSNNTNWKCFERLSSSLDIQDSEDEEDGNSQAFCRVPGTVVRTL	(SEQ. ID NO. 4)
6b-e1 mut	AVYELSNNTNWKCFERLSSSLDIQDSEDEEDGNSQAFCRVPGTVVRTL	(SEQ. ID NO. 5)

Fig. 3

	1	60
Hpv-11e2	MEAI AKRLDACQDQ LLELYEENSIDIHKHIMHWKCIRLESVLLHKAQMGSLSHIGLQVVP	
Hpv6a-e2	MEAI AKRLDACQEQLLELYEENSTD LNKHVLHWCMRHESVLLYAKAQMGSLSHIGMQVVP	
Hpv6b-e2	MEAI AKRLDACQEQLLELYEENSTD LKHVHLHWCMRHESVLLYAKAQMGSLSHIGMQVVP	
	61	120
Hpv-11e2	PLTVSETKGHNAIEMQM HLESIAKTQYGV EPWTLQDTSYEMWLT PPKRCFKKQGN TVEVK	
Hpv6a-e2	PLKVSEAKGHNAIEMQM HLESLLKTEYSMEPWT LQETS YEMWQT PPKRCFKKRGKTVEVK	
Hpv6b-e2	PLKVSEAKGHNAIEMQM HLESLLRTEYSMEPWT LQETS YEMWQT PPKRCFKKRGKTVEVK	
	121	180
Hpv-11e2	FDGCEDNVMEYVVWTHIYLQDND SWVKVTSSVDAKGIYYTCGQFKTY YVNFNKEAQKYGS	
Hpv6a-e2	FDGCANNTMDYVVWTDVYVQD TDSWVKVHSMVDAKGIYYTCGQFKTY YVNFVKEAEKYGS	
Hpv6b-e2	FDGCANNTMDYVVWTDVYVQD NDTWVKVHSMVDAKGIYYTCGQFKTY YVNFVKEAEKYGS	
	181	240
Hpv-11e2	TNHWEVCYGSTVICSPASVSSTVREVSIAEPTT YTPAQTAPTVSACTTEDGVSAPP RKR	
Hpv6a-e2	TKQWEVCYGSTVICSPASVSSTTQEVSIPESTT YTPAQTSTP.VSSSTQEDAVQT PPRKR	
Hpv6b-e2	TKHWEVCYGSTVICSPASVSSTTQEVSIPESTT YTPAQTSTL.VSSSTKEDAVQT PPRKR	
	241	300
Hpv-11e2	ARGFSTN. .NTLCVANIRSV DSTINNIVTDNYNKHQRRNNCHSAATPIVQLQGD SNCLKC	
Hpv6a-e2	ARGVQQSPCNALCVAHIGPVD SGNNHLITNNHDQHQRNNNSNSATPIVQFQGESNCLKC	
Hpv6b-e2	ARGVQQSPCNALCVAHIGPVD SGNNHLITNNHDQHQRNNNSNSATPIVQFQGESNCLKC	
	301	360
Hpv-11e2	FRYRLNDKYKHLFELASSTWHWASPEAPHKNAI VTLTYSSEEQRQOFLNSVKIPPTIRHK	
Hpv6a-e2	FRYRLNDKHRHLFDLISSTWHWASPKAPHKHAIVTVTYHSEEQRQOFLNVVKIPPTIRHK	
Hpv6b-e2	FRYRLNDRHRHLFDLISSTWHWASSKAPHKHAIVTVTYDSEEQRQOFLDVVKIPPTIRHK	
	361	369
Hpv-11e2	VGFM SLHL [SEQ. ID NO. 6]	
Hpv6a-e2	LGFM SLHL [SEQ. ID NO. 7]	
Hpv6b-e2	LGFM SLHL [SEQ. ID NO. 8]	

Fig. 4a

	1	60
Hpv-11e2-comut	MEATAKRLDACQDQLLELYEENSIDIHKHIMHWKCIRLESVLLHKAQMGLSHIGLVVP	
Hpv-11e2-mut	MEATAKRLDACQDQLLELYEENSIDIHKHIMHWKCIRLESVLLHKAQMGLSHIGLVVP	
Hpv-11e2-wt	MEATAKRLDACQDQLLELYEENSIDIHKHIMHWKCIRLESVLLHKAQMGLSHIGLVVP	
	61	120
Hpv-11e2-comut	PLTVSETKGHNAIEMQMHELSAKTQYGVEPWTLQDTSYEMWLTTPKRCFAKQGNTEVEK	
Hpv-11e2-mut	PLTVSETKGHNAIEMQMHELSAKTQYGVEPWTLQDTSYEMWLTTPKRCFAKQGNTEVEK	
Hpv-11e2-wt	PLTVSETKGHNAIEMQMHELSAKTQYGVEPWTLQDTSYEMWLTTPKRCFAKQGNTEVEK	
	121	180
Hpv-11e2-comut	FDGCEDNVMEYVVWTHIYLQDNDWVKVTSSVDAKGIYYTCGQFKTYVNFNKEAQKYGS	
Hpv-11e2-mut	FDGCEDNVMEYVVWTHIYLQDNDWVKVTSSVDAKGIYYTCGQFKTYVNFNKEAQKYGS	
Hpv-11e2-wt	FDGCEDNVMEYVVWTHIYLQDNDWVKVTSSVDAKGIYYTCGQFKTYVNFNKEAQKYGS	
	181	240
Hpv-11e2-comut	TNHWEVCYGSTVICSPASVSSTVREVSI AEPTTYTPAQT TAPTVSACTTEDGVSAPPRKR	
Hpv-11e2-mut	TNHWEVCYGSTVICSPASVSSTVREVSI AEPTTYTPAQT TAPTVSACTTEDGVSAPPRKR	
Hpv-11e2-wt	TNHWEVCYGSTVICSPASVSSTVREVSI AEPTTYTPAQT TAPTVSACTTEDGVSAPPRKR	
	241	300
Hpv-11e2-comut	ARGPSTNNTLCVANIRSV DSTINNIVTDNYNKHQRNNCHSAATPIVQLQGD SNCLKCFR	
Hpv-11e2-mut	ARGPSTNNTLCVANIRSV DSTINNIVTDNYNKHQRNNCHSAATPIVQLQGD SNCLKCFR	
Hpv-11e2-wt	ARGPSTNNTLCVANIRSV DSTINNIVTDNYNKHQRNNCHSAATPIVQLQGD SNCLKCFR	
	301	360
Hpv-11e2-comut	YRLNDKYKHLFELASSTWHWASPEAPHKNAIVTLTYSSEEQRQQFLNSVKIPPTIRHKVG	
Hpv-11e2-mut	YRLNDKYKHLFELASSTWHWASPEAPHKNAIVTLTYSSEEQRQQFLNSVKIPPTIRHKVG	
Hpv-11e2-wt	YRLNDKYKHLFELASSTWHWASPEAPHKNAIVTLTYSSEEQRQQFLNSVKIPPTIRHKVG	
	361	367
Hpv-11e2-comut	FMSLHLL [SEQ. ID NO. 9]	
Hpv-11e2-mut	FMSLHLL [SEQ. ID NO. 10]	
Hpv-11e2-wt	FMSLHLL [SEQ. ID NO. 11]	

Fig. 4b

	1	60
Hpv-6be2-wt	MEAI AKRLDACQEQLLELYEENSTDLHKHVLHWKCMRHESVLLYKAKQMGSLSHIGMQVVP	
Hpv-6be2-mut	MEAI AKRLDACQEQLLELYEENSTDLHKHVLHWKCMRHESVLLYKAKQMGSLSHIGMQVVP	
	61	120
Hpv-6be2-wt	PLKVSEAKGHNAIEMQMHHLESLLRTEYSMEPWTLQETSYEMWQTPPKRCFKKRGKTVEVK	
Hpv-6be2-mut	PLKVSEAKGHNAIEMQMHHLESLLRTEYSMEPWTLQETSYEMWQTPPKRCFAKRGKTVEVK	
	121	180
Hpv-6be2-wt	FDGCANNTMDYVVWTDVYVQDNDTWVKVHSMVDAKGIYYTCGQFKTYVNFVKEAEKYGS	
Hpv-6be2-mut	FDGCANNTMDYVVWTDVYVQDNDTWVKVHSMVDAKGIYYTCGQFKTYVNFVKEAEKYGS	
	181	240
Hpv-6be2-wt	TKHWEVCYGSTVICSPASVSSTTQEVSIPETSTYTPAQTSTL.VSSSTKEDAVQTPPRKR	
Hpv-6be2-mut	TKHWEVCYGSTVICSPASVSSTTQEVSIPETSTYTPAQTSTL.VSSSTKEDAVQTPPRKR	
	241	300
Hpv-6be2-wt	ARGVQQSPCNALCVAHIGPVDSGNHNLIITNNHDQHQRNNNSNSSATPIVQFQGESNCLKC	
Hpv-6be2-mut	ARGVQQSPCNALCVAHIGPVDSGNHNLIITNNHDQHQRNNNSNSSATPIVQFQGESNCLKC	
	301	360
Hpv-6be2-wt	FRYRLNDRHRHFLDLISSTWHWASSKAPHKHAIVTVTYDSEEQRQQFLDVVKIPPTISHK	
Hpv-6be2-mut	FRYRLNDRHRHFLDLISSTWHWASSKAPHKHAIVTVTYDSEEQRQQFLDVVKIPPTISHK	
	361	369
Hpv-6be2-wt	LGFMSLHLL [SEQ. ID NO. 12]	
Hpv-6be2-mut	LGFMSLHLL [SEQ. ID NO. 13]	

Fig. 5a

HPV6be1-comut	1	60
	GCGGCCGCCATGGCAGACGATTCCGGTACTGAGAACGAAGGTTCTGGTTGTACCGGTTGG	
HPV6be1-comut	61	120
	TTTCATGGTTGAAGCAATCGTTCAGCATCCGACTGGTACCCAGATCTCCGATGACGAAGAC	
HPV6be1-comut	121	180
	GAAGAAGTTGAAGATTCTGGTTACGACATGGTTGACTTCATCGATGACTCCAACATCACT	
HPV6be1-comut	181	240
	CATAACTCTCTGGAAGCACAGGCTCTGTTTAACGCCAGGAAGCTGATACCCATTACGCT	
HPV6be1-comut	241	300
	ACTGTTCAAGACCTGGGAGGCAAATATCTGGGCTCTCCGTACGTTTCCCGATCAACACT	
HPV6be1-comut	301	360
	ATCGCAGAAGCAGTTGAGTCTGAAATCTCCCGCGCCTGGACGCTATCAAAGTACTCGT	
HPV6be1-comut	361	420
	CAGCCGAAGAAGGTTAAACGTCGTCTGTTCCAGACTCGTGAACGACCGACTCCGGTTAC	
HPV6be1-comut	421	480
	GGTTATAGCGAAGTTGAGGCTGGCACCGGCACCCAGGTTGAAAACACGGTGTACCGGAA	
HPV6be1-comut	481	540
	AACGGCGGCGACGGTCAGGAAAAGGACACCGGCCGCGACATCGAGGGTGAGGAACACACC	
HPV6be1-comut	541	600
	GAAGCTGAAGCTCCGACTAACTCTGTTCGTGAACACGCAGGTTACTGCGGGTATCTTGAA	
HPV6be1-comut	601	660
	CTGCTGAAATGCAAAGACCTGCGCGCGGCTCTGCTGGGCAAATTCAAAGAATGCTTCGGC	
HPV6be1-comut	661	720
	CTGTCTTTTCATTGACCTGATCCGTCGGTTTAAAGTCTGACAAAACACCTGCTCGGACTGG	
HPV6be1-comut	721	780
	GTTGTAGCAGGCTTCGGCATCCACCACTCTATCTCTGAAGCATTCAGAAAACGATCGAG	
HPV6be1-comut	781	840
	CCGCTGTCTCTGTACGCGCACATCCAGTGGCTGACTAACGCTTGGGGTATGGTTCTGCTG	
HPV6be1-comut	841	900
	GTAAGTCTGCGCTTTAAAGTAAACAACTCTCGTTCACGTGTGCTCGTACTCTGGCTACC	
HPV6be1-comut	901	960
	CTGCTGAACATCCCGGAGAACAGATGCTGATCGAACCGCCGAAAAATCCAGTCTGGTGTA	
HPV6be1-comut	961	1020
	GCTGCACGTACTGGTTTCGTACTGGCATCTCTAACGCTAGCACTGTTATCGGTGAAGCA	
HPV6be1-comut	1021	1080
	CCGGAATGGATCACTCGTCAGACCGTTATCGAACACGGTCTGGCAGATTCTCAGTTCAA	
HPV6be1-comut	1081	1140
	CTGACTGAAATGGTTCAAGTGGCATACGACACGACATCTGCGAGGAATCTGAAATTGCG	

Fig. 5b

```

HPV6bel-comut 1141
                TTGGAATACGCTCAGCGTGGCGACTTCGACTCCAACGCTCGTGCTTTCCTGAACAGCAAC 1200
HPV6bel-comut 1201
                ATGCAGGCTAAATACGTAAAAGACTGCGCTACCATGTGCCGTCACACAAACACGCGGAA 1260
HPV6bel-comut 1261
                ATGCGTAAAAATGCTATCAACAGTGGATCAAGCACCGCGGTTCTAAAATCGAAGGTACC 1320
HPV6bel-comut 1321
                GGTAACTGGAAACCGATCGTTCAGTTCCCTGCGCCATCAGAACATCGAAATTCATCCCGTTC 1380
HPV6bel-comut 1381
                CTGACCAAATTCAGCTGTGGCTGCACGGTACCCCCGAAAAAACTGCATCGCTATCGTA 1440
HPV6bel-comut 1441
                GGTCCACCGGACACTGACAAGTCTTACTTCTGTATGTCCTGATCTCTTTCCTGGGCGGC 1500
HPV6bel-comut 1501
                ACTGTAATCTCTCACGTTAACTCTTCTCCCATTTCTGGCTGCAGCCACTGGTAGACGCG 1560
HPV6bel-comut 1561
                AAAGTAGCTCTGCTGGACGACGCGACCCAGCCGTGCTGGATCTACATGGATACTTACATG 1620
HPV6bel-comut 1621
                CGCAACCTGCTGGACGGTAACCCGATGTCTATCGACCGTAAACAAAGCGCTGACTCTG 1680
HPV6bel-comut 1681
                ATCAAGTGCCCGCCGCTGCTGGTAACCTCTAACATCGACATCACCAGGAAGATAAATAC 1740
HPV6bel-comut 1741
                AAGTACCTGCATACCCGTGTACTACCTTTACTTTCCCGAACCCGTTCCCGTTTGATCGT 1800
HPV6bel-comut 1801
                AACGGTAACGCTGTTTACGAACGTCCAACACTAACTGGAATGCTTCTTCGAGCGTCTG 1860
HPV6bel-comut 1861
                TCTTCTCCCTGGACATCCAGGACTCTGAAGATGAAGAAGATGGTTCTAACTCTCAGGCT 1920
HPV6bel-comut 1921
                TTCCGTTGTGTTCCGGGTACTGTTGTTTCGTACTCTGTGAGGATCC''. [SEQ. ID NO. 14] 1968
```

Fig. 6

```

1
Hpvl1e2-comut ''GCGGCCGCATGGAAGCCATCGCGAAGAGGCTCGACGCTGCCAGGACCAGTCTGCTCG 60
61
Hpvl1e2-comut AGCTGTACGAGGAGAACAGCATTGACATCCATAAGCACATCATGCACTGGAAGTGCAATTC 120
121
Hpvl1e2-comut GCCGTGGAGAGCGTGCTGTTGCACAAAGGCCAAGCAGATGGGCCTGTCCCACATAGGCCTTC 180
181
Hpvl1e2-comut AGGTGGTCCCCCTCTGACCGTGTGAGAGACAAAGGGCCATAACGCAATCGAGATGCAGA 240
241
Hpvl1e2-comut TGCACCTCGAGTCGCTGGCGAAAACACAGTACGCGCTGGAGCCATGGAACCTGCAGGACA 300
301
Hpvl1e2-comut CCTCGTACGAAATGTGGCTGACCCACCTAAGCGATGCTTCGCCAAACAGGGCAACACAG 360
361
Hpvl1e2-comut TGGAGGTGAAGTTCGACGGCTGTGAGGATAACGTTATGGAGTATGTCTGTGGACGCACA 420
421
Hpvl1e2-comut TCTATCTGCAGGACAACGACAGTTGGGTGAAGGTGACCAGTCCGTGGACGCGAAGGSCA 480
481
Hpvl1e2-comut TCTACTATACCTGTGGGCAGTTTAAACCTACTATGTGAACCTCAACAAAGAGGCCCAA 540
541
Hpvl1e2-comut AGTATGGCTCCACCAACCACTGGGAGGTCTGCTATGGGAGCACGGTGATTGTCTCTCCG 600
601
Hpvl1e2-comut CCAGCGTGTCTAGCACTGTGCGGAGGTGAGCATTGCCGAGCCGACCAGTACACCCCTG 660
661
Hpvl1e2-comut CCCAGACGACCGCTCCGACCGTGTCTGCTTGTACTACCGAGGACGGCTGAGCGCTCCAC 720
721
Hpvl1e2-comut CCAGGAAGCGTGCAGGGGGCCCAAGCACCAACAACACCTCTGTGTGGCGAACAATTCGCA 780
781
Hpvl1e2-comut GCGTCGACAGTACCATCAATAACATCGTGACGGATAACTATAACAAGCACCAGAGGCGTA 840
841
Hpvl1e2-comut ACAACTGTCACTCTGCCGAACCCCCATCGTGACGCTCCAGGGAGACAGCAATTGCGCTTA 900
901
Hpvl1e2-comut AGTGCTTCCGCTATCGCCTCAACGACAAGTACAAGCACCTCTTTGAGCTCGCCTCGTCA 960
961
Hpvl1e2-comut CGTGGCACTGGGCCTCACCCGAGGCACCTCACAAGAAGCCCATCGTCACTCTCACTTACT 1020
1021
Hpvl1e2-comut CCAGTGAGGAGCAGAGACAGCAGTTTCTGAACGCGTGAAGATCCCACCGACGATCCGTC 1080
1081
Hpvl1e2-comut ATAAAGTCGGCTTCATGTCACTGCATCTCCTGTGAGGATCC'' [SEQ. ID NO. 15] 1123
```


Fig. 7

WRG7313plc

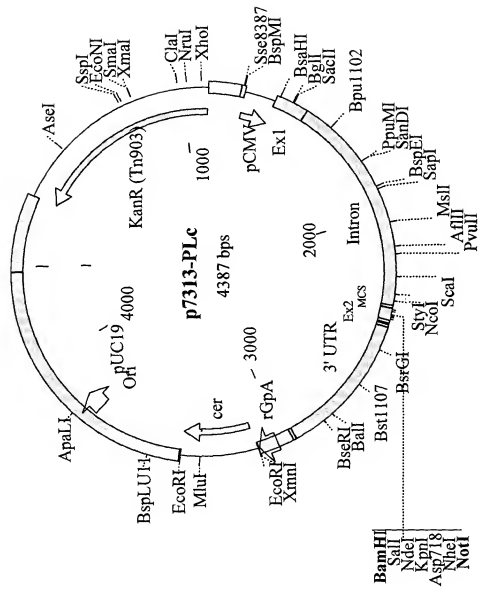
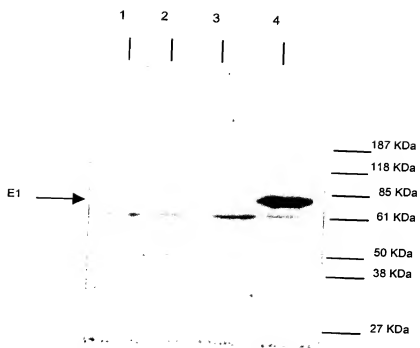


Fig. 8



Key :

- 1- 293T cell lysate control
- 2- p7313PLc vector control
- 3- p6bE1 w/t
- 4- p6bE1 c/o

Fig. 9

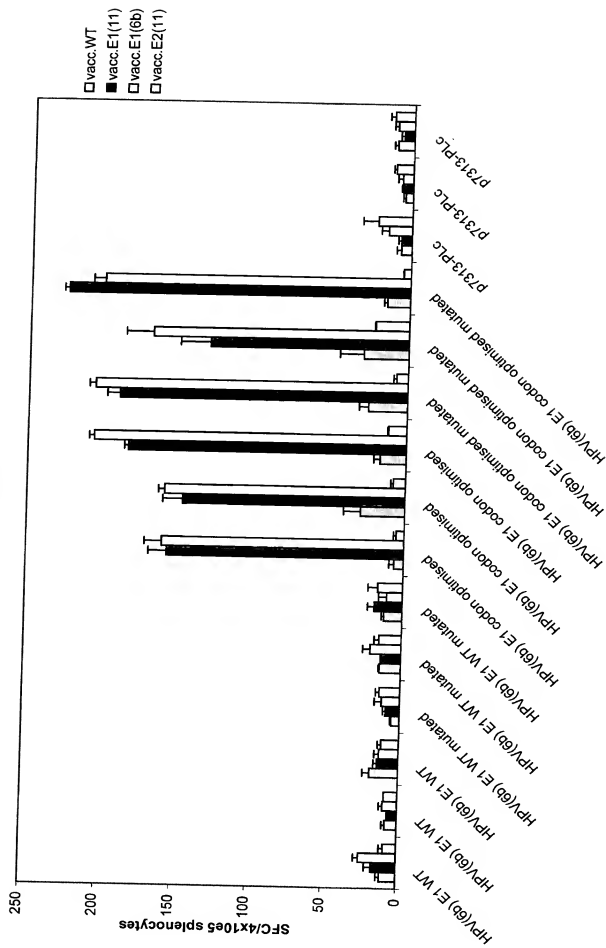


Fig. 10

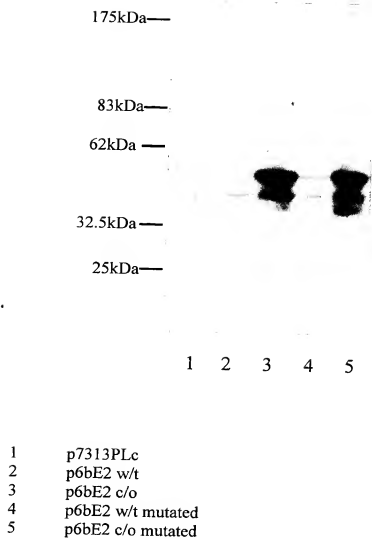


Fig. 11

Codon-optimised COPV E1 protects against Disease

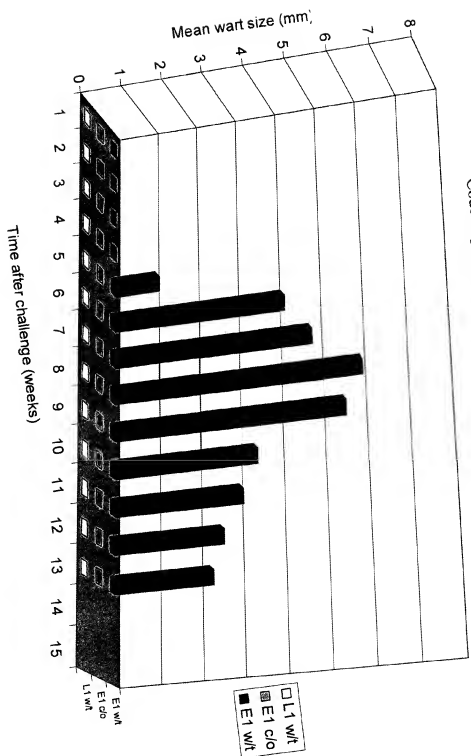


Fig. 12

Codon-optimisation of the COPV E1 gene significantly improves protein expression.

